GORDON RESEARCH CONFERENCES
PASTORE CHEMICAL LABORATORY
UNIVERSITY OF RHODE ISLAND
KINGSTON, RHODE ISLAND 02881

THE ROLE OF OXYGEN RADICALS IN BIOLOGY AND MEDICINE

7-11 February 1983
Ventura, California

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and
William A. Pryor, Co-Chairman
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MONDAY AM

CHEMISTRY OF OXYGEN RADICALS

Chairperson: William A. Pryor (Baton Rouge)

H.A.O. Hill (Oxford)	Chemistry and Detection of Oxygen Radicals
D. Sawyer (Riverside)	Activation of Superoxide Ion by Organic and Metallo Coupling Reactions
J. Groves (Ann Arbor)	Oxygen Activation by Heme-Containing Oxygenases: Evidence for Free Radical Processes.

MONDAY PM

CHEMISTRY OF OXYGEN RADICALS

Chairperson: Chris Foote (Los Angeles)

R.L. Willson (Uxbridge)	Glutathione and Related Thiols in Free Radical Protection: Direct Observation of Coupled Hydrogen Atom and One-Electron Transfer Reactions Involving Ascorbate, NADH and Cytochrome C.
J. Butler (Manchester)	Reactions of Superoxide Anion Radicals
W.H. Koppenol (Evanston)	Thermodynamic Aspects of Reactions Involving Oxygen Radicals

TUESDAY AM

BIOLOGICAL OXIDATIONS

Chairperson: Trevor Slater (Uxbridge)

I. Fridovich (Durham)	Superoxide Dismutase: Exceptions to the Rules
L. Ernster (Stockholm)	Role of DT Diaphorase in the Control of Oxygen-Radical Generation by One-Electron Quinone Reductase.
N. Porter (Durham)	Free Radical Dynamics in Lipid Bilayers

TUESDAY PM

BIOCHEMISTRY OF OXYGEN RADICALS

Chairperson: Norman Krinsky (Boston)

D. Borg (Upton)	The IRONy of It All!
V. Ullrich (Saarbrücken)	The Mechanism of Dioxygen Activation by Heme-thiolate (Cytochrome P450) Proteins
R.W. Estabrook (Dallas)	The Role of Cytochrome P-450 in Arachidoic Acid Metabolism
S. Hammarström (Stockholm)	Synthesis of Leukotrienes

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WEDNESDAY AM

ANTIOXIDANTS

Chairperson: A.L. Tappel (Davis)

A. Quintanilha (Berkeley)	Vitamin E - Membrane Effects
A. Tappel (Davis)	Measurement of and Antioxidant Protection from In Vivo Lipid Peroxidation
A. Diplock (London)	Antioxidant Protection; Interaction of Vitamin E with Other Factors
K. Ingold (Ottawa)	Lipid Autoxidation and its Prevention
B. Ames (Berkeley)	Assaying Oxidants and Antioxidants

WEDNESDAY PM

BIOLOGICAL IMPACTS -- PROSTAGLANDIN/INFLAMMATION

Chairperson: Karl E. Arfors (Uppsala)

P. McCay (Oklahoma City)	Formation of Oxygen-Centered Radicals During Carbon Tetrachloride Metabolism In Vivo amd In Vitro
M. Carpenter (Oklahoma City)	Prostaglandin Synthesis and Free Radicals
Christian de Duve (Brussels)	The Riddle of the Microbody

THURSDAY AM

BIOLOGICAL IMPACTS -- CANCER/PATHOLOGY

Chairperson: Irwin Fridovich (Durham)

T. Galeotti (Rome)	Oxygen Toxicity in Cancer Cells
P.A. Riley (London)	Anti-Tumor Action of Hydroxyanisole
W. Lown (Edmonton)	Reactive Oxygen Species Implicated in the Toxicity and Cytotoxic Action of Certain Anticancer Agents.
S. Orrenius (Stockholm)	Generation and Effects of Oxygen Radicals Intact Cells

THURSDAY PM

SPECIAL LECTURE

Chairperson: Lester Packer (Berkeley)

B. Samuelsson (Stockholm)	Arachidonic Acid Cascade: Origin and Future

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FRIDAY AM

BIOLOGICAL IMPACTS: AGING/BLOOD

Chairperson: Paul Hochstein (Los Angeles)

R. Cutler (Baltimore)	Biological Basis of Human Longevity: Role of Antioxidants
B.M. Babior (Boston)	Superoxide and Neutrophils: Recent Studies
A. Autor (Iowa City)	The $O_2^{\cdot-}$ Enzyme, NADPH-Oxygen Oxidoreductase of Pulmonary Macrophages

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POSTER SESSIONS FOR GORDON RESEARCH CONFERENCE ON THE ROLE OF OXYGEN RADICALS IN BIOLOGY AND MEDICINE

Poster Session I

CHEMISTRY AND BIOCHEMISTRY OF OXGYEN RADICALS

S. Aust (East Lansing)	Initiation of Lipid Peroxidation by Iron Complexes
G. Burton (Ottawa)	Is alpha-Tocopherol Really the Best Chain-Breaking Antioxidant?
H. Esterbauer (Graz)	Aldehydic Products from Lipidperoxidation: Their Isolation and Identification
R. Floyd (Oklahoma City)	Chemical Carcinogenesis
A. Frimer (Brookhaven)	Superoxide Mediated Oxidation of Hydrocarbons in Aprotic Media
H. Goff (Iowa City)	Iron Porhyrin Catalyzed Electrochemical Oxygenation of Hydrocardons
H.M. Hassan (Durham)	Protection Against the Mutagenicity of Oxygen Free Radicals by Superoxide Dismutase and Mannitol
B. Kalyanaraman (Milwaukee)	The Production of Hydroxyl Radicals from Activated Anthracycles
S. Marklund (Umeå)	A Novel Human Copper-Containing Superoxide Dismutase
R.J. Mehlhorn (Berkeley)	A Visible-Light-Driven Fenton Reaction and Mitochondrial Damage
L.H. Piette (Honolulu)	Role of Iron in Lipid Peroxidation
C.C. Reddy (University Park)	Effects of Vitamin E and/or Selenium Deficiency on the Cooxidation of Benzo(a)-pyrene-7,8-dihydrodiol Mediated by Prostaglandin Synthetase catzlyzed Arachidonic Acid Metabolism
C. Richter (Zurich)	Hydroperoxides as Regulators of Calcium Release from Mitochondria
M. Thomas (Winston-Salem)	Autooxidation of Linoleic Acid Induced by Xanthine Oxidase

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Poster Session II

BIOMEDICAL IMPLICATIONS OF OXYGEN RADICALS

A.C. Allison (Palo Alto)	Oxygen Radicals in the Pathogenesis of Edema
K. Davies (Boston)	Oxy-Radical Production and Cardiotoxicity of Anthracyclines Catalized by Mitochondrial NADH Dehydrogenase
B. Freeman (Durham)	Pulmonary Oxygen Toxicity -- Augmentation of Endogenous Defence Systems
A.W. Girotti (Milwaukee)	Lytic Effects of O_2 Radicals on Resealed RBC Ghosts
T.R. Green (Portland)	The Superoxide Generating Oxidoreductase of Human Neutrophils: Metal Ion Dependence and Delineation of its Catalytic Components.
P. Hornsby (Ja Jolla)	Scavenging of a radical produced by mitochondrial cytochrome P450 in bovine adrenocortical cells.
O.T.G. Jones (Bristol	The Microbicidal Oxygen Radical-Producing Oxidase of Human Neutrophils
R.D. Lippman (Uppsala)	Measurement of Hydroperoxides and Collagen Elasticity Directly In Vivo in Mice and Man
W. Lohmann (Giessen)	Free Radicals and Cancer
L. Marnett (Detroit)	Metabolic Activation of Chemical Carcinogens by Oxygen Radicals
L.W. Oberley (Iowa City)	Antitumor Therapies Based on Inhibition of Antioxidant Enzymes Stimulation of Glomerular and Tubular Cell Growth by Antioxidant Enzymes and Their Inhibitors
H. Sies (Munich)	Oxygen Stress in Intact Cells and Organs: Redox Cycling and the Formation of Singlet Oxygen, Mixed Disulfides and Glutathione Disulfide.
R.S. Sohal (Dallas)	The Effects of Diethyldithiocarbamate on Metabolic Rate, Superoxide Dismustase, Catalase, Hydrogen Peroxide, Glutathione, and Lipe Span of the Male Housefly, Musca domestica

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